

Aut  
B-17

## TITLE OF THE INVENTION

PURCHASE REQUEST APPROVING APPARATUS AND PURCHASE REQUEST  
APPROVING METHOD

5

## BACKGROUND OF THE INVENTION

The present invention relates to a purchase request approving apparatus and purchase request approving method for requesting purchase of articles.

10 Conventionally, companies and business offices purchase various articles necessary for daily business operations from external suppliers.

There are a variety of articles to be purchased. However, for example, purchases of articles such as stationery, for which purchase requests are issued in units of sections, are generally made according to the following procedure and get behind in office automation and paperless transactions.

A general clerk or the like issues a purchase slip for specifying a desired article. Next, a manager approves the issued slip by, e.g., sealing (signature). The approved slip is handed over to the procurement department. The procurement department puts a plurality of orders into a lot as needed, newly issues a purchase order slip, and sends it to an external supplier. With this procedure, the desired articles are delivered.

## SUMMARY OF THE INVENTION

It is an object of the present invention to provide a purchase request approving apparatus and purchase request  
5 approving method capable of abolishing the conventional business procedures including preparation, issue, and transfer of physical purchase slips and efficiently inputting approval or rejection of a purchase-requested article.

10 In order to achieve the above object, a purchase request approving apparatus according to the present invention has the following arrangement.

There is provided a purchase request approving apparatus capable of approving a purchase request of a  
15 desired article, characterized by comprising display means for displaying information, which is stored in a database in advance, associated with articles for which approval of purchase is requested, and purchase approving means capable of storing, in the database, information representing  
20 approval or rejection of purchase of an article selected from the articles displayed by the display means.

The apparatus is characterized in that a requester capable of purchase request for the desired article belongs to a group based on predetermined common information, and  
25 the apparatus further comprises requester group setting means capable of setting a desired requester group

different from the group of requesters for which approval or rejection of purchase is to be determined by the purchase approving means in accordance with the predetermined common information.

5           The apparatus is characterized in that the group of requesters is a section group in a company, and the predetermined common information is an identification code representing each section of the company.

10           The apparatus is characterized in that the display means is a browser of an internet, which is executed by the purchase request approving apparatus connected to a communication network, and the purchase approving means is constructed by a predetermined Web page displayed by the browser.

15           Further, the foregoing object is attained by providing a purchase request approving method of approving a purchase request of a desired article using a computer, characterized by comprising a display step of displaying  
20           information, which is stored in a database in advance, associated with articles for which approval of purchase is requested and a purchase approving step of storing, in the database, information representing approval or rejection of purchase of an article selected from the articles  
25           displayed in the display step.

Other features and advantages of the present invention will be apparent from the following description taken in conjunction with the accompanying drawings, in which like reference characters designate the same or similar parts  
5 throughout the figures thereof.

#### BRIEF DESCRIPTION OF THE DRAWINGS

Fig. 1 is a view showing the overall arrangement of a purchase request system according to an embodiment of the  
10 present invention;

Fig. 2 is a block diagram of a personal computer which can be used as a client computer in the embodiment of the present invention;

Fig. 3 is a view showing the system configuration of software executed by the A/S of the purchase request system  
15 according to the embodiment of the present invention;

Fig. 4 is a view showing the system configuration of software executed by the A/S of the purchase request system according to the embodiment of the present invention;

Fig. 5 is a view showing the system configuration of software executed by the A/S of the purchase request system according to the embodiment of the present invention;  
20

Fig. 6 is a view for explaining symbols used in Figs. 3 to 5;

Fig. 7 is a view showing a mailer window displayed when approval request mail is sent to the approver by the  
25

mailer function of the purchase request system according to the embodiment of the present invention;

Fig. 8 is a view showing a mailer window displayed when mail replying to the approval request is sent to the requester by the mailer function of the purchase request system according to the embodiment of the present invention;

Fig. 9 is a view showing a login window in the purchase request system according to the embodiment of the present invention;

Fig. 10 is a view showing a user information registration/change window in the purchase request system according to the embodiment of the present invention;

Fig. 11 is a view showing a request state display window in the purchase request system according to the embodiment of the present invention;

Fig. 12 is a view showing the dialogue box for designating search conditions and display form in the request state display window;

Fig. 13 is a view showing icon images indicating the number of purchase-requested articles in the embodiment of the present invention;

Fig. 14 is a view showing the catalog search window of the purchase request processing function of the purchase request system according to the embodiment of the present invention;

Fig. 15 is a view showing the catalog list window of the purchase request processing function of the purchase request system according to the embodiment of the present invention;

5        Fig. 16 is a view showing the individual input window of the purchase request processing function of the purchase request system according to the embodiment of the present invention;

10       Fig. 17 is a view showing the requested article selection list window of the purchase request processing function of the purchase request system according to the embodiment of the present invention;

15       Fig. 18 is a view showing the detail information input window for a many-item request of the purchase request processing function of the purchase request system according to the embodiment of the present invention;

20       Fig. 19 is a view showing a state wherein the approval request window for a many-item request is displayed together with the detail information input window by the approval request processing function of the purchase request system according to the embodiment of the present invention;

25       Fig. 20 is a view showing a state wherein the approval request window for a one-item request is displayed together with the detail information input window by the approval request processing function of the purchase request system

according to the embodiment of the present invention;

Fig. 21 is a view showing conditions of cross-check executed by a client in inputting data to the detail information input window in the purchase request system according to the embodiment of the present invention;

Fig. 22 is a view showing the error window displayed when the desired due date of delivery input in the detail information input window has an error in the purchase request system according to the embodiment of the present invention;

Fig. 23 is a view showing the acceptance result list window displayed by the acceptance result display function in the purchase request system according to the embodiment of the present invention;

Fig. 24 is a view showing the approval request list window displayed by the approval processing function in the purchase request system according to the embodiment of the present invention;

Fig. 25 is a view showing the approval processing window of the approval processing function in the purchase request system according to the embodiment of the present invention;

Fig. 26 is a view showing the rejection processing window of the approval processing function in the purchase request system according to the embodiment of the present invention;

Fig. 27 is a view showing the temporary worker list window of the temporary worker management function in the purchase request system according to the embodiment of the present invention;

5        Fig. 28 is a view showing the temporary worker registration window of the temporary worker management function in the purchase request system according to the embodiment of the present invention;

10       Fig. 29 is a view showing the temporary worker deletion window of the temporary worker management function in the purchase request system according to the embodiment of the present invention;

15       Fig. 30 is a flow chart of software executed by each client in the purchase request system according to the embodiment of the present invention;

Fig. 31 is a flow chart showing the outline of processing executed by the A/S of the purchase request system according to the embodiment of the present invention;

20       Fig. 32 is a flow chart showing the outline of processing executed by the A/S of the purchase request system according to the embodiment of the present invention; and

25       Fig. 33 is a flow chart showing window display processing common to modules executed by the A/S of the purchase request system according to the embodiment of the



present invention.

#### DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

An embodiment of the present invention will be  
5 described below in detail with reference to the  
accompanying drawings.

##### [Hardware Configuration of System]

The overall hardware configuration of a purchase  
request system of this embodiment will be described first.

10 Fig. 1 is a view showing the overall arrangement of  
the purchase request system according to the embodiment of  
the present invention.

Referring to Fig. 1, reference numeral 30 denotes a  
communication line as a LAN (Local Area Network) or WAN  
15 (Wide Area Network); 1, a plurality of client computers (to  
be referred to as clients hereinafter); 1A, a client for  
a system manager for maintaining and managing the system;  
and 2, an application server computer (to be referred to  
as an A/S hereinafter) for realizing a purchase request  
20 function (to be described later) and the like.

A Web server computer (to be referred to as a W/S  
hereinafter) 3 provides a so-called intranet environment  
in accordance with general software for realizing, e.g.,  
the WWW (World Wide Web) function in a client-server system  
25 constituted by the plurality of clients 1 (including the  
client 1A) and A/S 2. A mail server computer (to be referred

to as an M/S hereinafter) 4 controls/manages electronic mail transmission/reception between the clients in accordance with general mail management function (mailer) software. A database (D/B) 5 systematically stores  
5 various data associated with the purchase request system on the communication line 30.

Personnel data 7 is used in this purchase request system, which is included in various personnel data stored by an external system (to be referred to as a personnel  
10 information management system hereinafter) for systematically managing the personnel information of a company to which the users of the clients 1 and 1A belong. The personnel data 7 correlates at least the names, employee numbers, and positions of employees with each other in  
15 advance. The system manager for maintaining and managing the client 1A copies the personnel data 7 as identification (ID) information of users (employees) who can use the purchase request function (to be described later) in the clients 1 to a portable storage medium 8 such as a floppy  
20 disk and downloads the copy data from, e.g., the client 1A to the D/B 5.

The storage medium 8 is used to copy the personnel data 7 because a number of personal information of the employees are generally stored in the personnel information  
25 management system. As far as a sufficient security guarantee function can be realized between the personnel

data 7 and the purchase request system, the personnel data 7 may be downloaded through the communication line periodically and/or irregularly, or the master information of the personnel data 7 in the personnel information management system may be accessed when each client 1 logs in to the A/S 2.

In this purchase request system, a plurality of W/Ss 3 are connected through a leased line and/or public line 31. With this arrangement, the same intranet environment as that for the clients 1 can be provided to clients connected to a communication line (not shown; LAN or WAN) in another business office.

Data associated with articles to be purchased, which is stored in the D/B 5 by the purchase request function (to be described later), is appropriately updated between the D/B 5 and a database 6 prepared in another system used to actually order the articles to external suppliers. The database 6 is included in, e.g., an article ordering system managed and used by the procurement department in the company (business office). On the basis of the data of articles to be purchased, which is reflected to the database 6, the article ordering system puts an article whose purchase quantity is large into a desired lot and actually orders the article to an external supplier. To actually order an article, the general EDI (Electronic Data Interchange) function is used, or an actual slip is issued

as needed. A detailed description thereof will be omitted in this application. The purchase request system may incorporate the function of the article ordering system.

If the company (business office) has no procurement department, and individual users who have requested to purchase articles can manage the article order, articles for which purchase is approved by approval processing (to be described later) may be directly ordered by the purchase request system.

10 In this embodiment, the purchase request system is realized on the intranet shown in Fig. 1. However, the present invention is not limited to this. If security of data to be transmitted/received can be ensured, the communication line 30 may be connected to a so-called Internet provider in place of some W/Ss 3 to allow a personal computer at a remote site as the client 1.

Fig. 2 is a block diagram of a personal computer which can be used as a client computer in the embodiment of the present invention. The client computer corresponds to the client 1 (1A) shown in Fig. 1.

Referring to Fig. 2, reference numeral 22 denotes a display 22 such as a CRT; 23, a keyboard as an input means; 24, a ROM which stores a boot program and the like; and 25, a RAM for temporarily storing various processing results. A storage unit 26 such as a hard disk drive (HDD) stores a general browser program that realizes access to a site

(information resource) of a desired URL (Uniform Resource Locator) and browsing and/or acquisition of information of the accessed site. A communication interface 27 communicates with external apparatuses such as the  
5 above-described servers through the communication line 30 (LAN or WAN) in accordance with a protocol such as the TCP/IP (Transmission Control Protocol/Internet Protocol) or HTTP (HyperText Transfer Protocol) as an upper layer of TCP/IP. Reference numeral 28 denotes a pointing device such as a  
10 mouse. These units are connected via an internal bus 29. A CPU 21 controls the entire client computer 1 (1A) in accordance with the program stored in the storage unit 26.

For each of the server computers such as the A/S 2, W/Ss 3, and M/S 4 as well, the display 22, keyboard 23, and  
15 pointing device 28 are prepared as needed. The basic hardware configuration of each server is substantially the same as that of the block diagram in Fig. 2. However, when accurate data processing by the servers and restoration of stored data are taken into consideration, hardware that  
20 duplicates the CPU 21 and storage unit 26 is employed. In this embodiment, separate servers are used in accordance with the function realized by each server. However, the present invention is not limited to this. As long as the data processing capability is sufficient, for example, the  
25 A/S 2 and M/S 4 may be realized by single hardware.

[Software Configuration of System]

The purchase request function realized by the system of the above-described embodiment will be described next. In the following description, the user (e.g., a general clerk) of the client 1 for requesting to purchase an article is called a "requester", and the user (e.g., a manager with a rank equal to or higher than a section manager) of the client 1 for determining approval or rejection of the purchase request for the article is called an "approver".

The purchase request system according to this embodiment will be briefly described. This system has a function with which the requester specifies (selects) a desired article prior to actual order of the article to be purchased by the external article ordering system shown in Fig. 1, a function as a purchase request apparatus for requesting the approver to approve purchase of the specified article, and a function as a purchase request approving apparatus with which the approver determines approval or rejection of purchase of the approval-requested article in a client-server environment where a plurality of clients are connected on a communication network (details will be described later). A user logs in to this system as a requester or approver in accordance with the user (employee) ID from a predetermined Web page displayed on the client 1. When the user logs in as an approver, he/she can also use the article specifying function and approval request function. This arrangement allows

abolition of the conventional business procedures including preparation, issue, and transfer of physical purchase slips and office automation (OA) in purchasing various articles to be used in business offices.

5           These functions are realized when the A/S 2 executes the module group of software constructing the system shown in Figs. 3 to 5 and stored in the A/S 2 in advance, and the client 1 executes the software shown in the flow chart of Fig. 30 as basic software for displaying windows (to be  
10 described later) shown in Figs. 9 to 29 on the display 22 of the client 1. Each client 1 and A/S 2 communicate using the above-described intranet environment by the W/Ss 3.

          The purchase request system uses an automatic mail function provided by the above-described M/S 4 when the  
15 requester notifies the approver of an approval request (Fig. 7) or the approver notifies the requester of an approval result (Fig. 8) (details will be described later).  
<Software Executed in Client 1>

          Software executed in the client 1 will be described.  
20           Fig. 30 is a flow chart of software executed by each client in the purchase request system according to the embodiment of the present invention. In this case, a user logs in to the purchase request system as a requester.

          The storage unit 26 of the client 1 stores a browser  
25 program in advance, as described above. First, the user of the client 1, who will log in to the purchase request

system as a requester, starts the browser in accordance with a predetermined procedure so as to make the client of his/her own link to the purchase request system executed by the CPU of the A/S 2 (more specifically, the browser program in the storage unit 26 is loaded in the RAM 25, and the CPU 21 executes the loaded program). Simultaneously, the user inputs predetermined URL to a predetermined area of the started browser. When the client is linked to the purchase request system through the W/S 3, the CPU 21 of the client 1 starts processing from step S1.

In this embodiment, the program of the cross-check function from step S3 to step S5 is directly described in the file of a Web page described in the HTML as a tag of the JavaScript. The cross-check function can be executed by each client 1. When the A/S 2 executes the cross-check function, transmission of data input from keys and transmission of data representing that the transmitted data is inappropriate are necessary as communication between the client 1 and A/S 2. However, when the cross-check function is executed by the client 1, the transmission can be omitted, and therefore, the waiting time of the user of the client 1 can be made shorter than that when the A/S 2 executes the cross-check function.

Since the program of the cross-check function is described as a tag of the JavaScript, every time a Web page described in the HTML is displayed, the client 1 can acquire



the program of the cross-check function from the A/S 2 together with data (to be referred to as display window data hereinafter) representing the layout of the displayed window. In addition, a program of old version can be  
5 prevented from remaining in the storage unit 26 of the client 1. This arrangement facilitates systematic management of the program of the cross-check function in the A/S 2.

Step S1: The RAM 25 receives the display window data  
10 of a home page (HP) and the like from the site (A/S 2) at the link destination through the communication interface 27. In this embodiment, the general HTML (HyperText Markup Language) is employed as the description language of a Web page.

15 Step S2: A window is displayed on the display 22 in accordance with the display window data received from the A/S 2 and D/B 5 and data embedded in the display window.

Step S3: It is detected whether key input of a numerical value or the like from the keyboard 23 or pointing  
20 operation using the pointing device 28 is performed.

Step S4: If YES in step S3 (the input operation is detected), it is determined whether a predetermined data input item is input in the window displayed on the display 22. If NO in step S4 (no predetermined data input item is  
25 input), the flow advances to step S7.

Step S5: If YES in step S4 (the predetermined data

input item is input), it is determined whether the input data detected in step S3 satisfies a predetermined cross-check condition. If YES in step S5, the flow advances to step S7.

5           Specific examples of the predetermined data input item and predetermined cross-check condition will be described later with reference to Figs. 20 and 21.

Step S6: If NO in step S5 (the condition is not satisfied), a predetermined alarm message is displayed on  
10   the display 22 in accordance with the determination result (error) in step S5, and the flow returns to step S3.

Step S7: The input data detected in step S3 or data corresponding to the pointing operation is transmitted to the A/S 2 via the communication interface 27.

15           Step S8: It is determined whether a predetermined input operation for instructing to end the browser is performed. If NO in step S8 (no end instruction is input), the flow returns to step S2. If YES in step S8 (the end instruction is input), the browser program is ended, and  
20   the area of the RAM 25 where the program has resided is released.

In this embodiment, the program of the cross-check function is described as a tag of the JavaScript. If the system environment allows easy version management of  
25   programs stored in the storage unit 26 of each client 1, the program of the cross-check function which is compiled

to the execution form in advance may be stored in the A/S 2. When a Web page described in the HTML is to be displayed on the client 1 for the first time, the program in the execution form may be downloaded to the client 1 in accordance with the tag of the Java applet contained in the file in advance.

<Software Executed by A/S 2>

Software executed by the CPU of the A/S 2 will be described next. First, the outline of the module group of the software constructing the system shown in Figs. 3 to 5 will be described with reference to the flow charts shown in Figs. 31 and 32. Next, window display processing common to the modules will be described with reference to the flow chart shown in Fig. 32. Finally, the functions of the modules shown in Figs. 3 to 5 will be described with reference to windows shown in Figs. 9 to 29 (including Figs. 7 and 8).

(1) Outline of Software Module Group of A/S 2

Figs. 3 to 5 are views showing the system configuration of software executed by the A/S of the purchase request system according to the embodiment of the present invention. Fig. 6 is a view for explaining symbols used in Figs. 3 to 5.

The software module group (to be referred to as modules hereinafter) executed by the A/S 2 comprises eight modules of login (01), request state display processing

(02), purchase request processing (03), correction input processing (04), approval request processing (05), acceptance result display processing (06), approval processing (07), and temporary worker management  
5 processing (08), as shown in Figs. 3 to 5. These modules have a function of displaying various windows (to be described later) on the display 22 of the client 1 and realizing an input operation in the displayed window. Transition between the modules and window display in each  
10 module can be done as indicated by arrows and broken lines in Figs. 3 to 5.

A numeral (\*\*-\*\*-\*\*) in each block representing a top window or a window belonging to the top window is a window number. A top window is displayed first when the function  
15 to be used by the user of the client 1 is changed by a predetermined operation in the window (to be described later).

Figs. 31 and 32 are flow charts showing the outline of processing executed by the A/S of the purchase request  
20 system according to the embodiment of the present invention.

Step S11: It is determined whether the client 1 logs in through the W/S 3. The client 1 logs in from a predetermined HP displayed on the display 22 of the client,  
25 as described with reference to Fig. 30.

Steps S12 and S13: When a user ID (including a password

from the second login) is received in step S11, the personnel data 7 (including a password group registered in the D/B 5 from the second login) stored in the D/B 5 in advance is referred to (step S12) to determine whether the  
5 received user ID is an approver (step S13). If YES in step S13 (the login user is an approver), the flow advances to step S31 in Fig. 32.

Step S14: If NO in step S13 (the login user is a requester), request state display processing (02) is  
10 performed. At this time, transition to correction input processing (04) is possible.

Step S15: It is detected whether start request data for another module different from the module that is being currently executed is received from the login client 1  
15 through the W/S 3. If NO (the data is not received), the flow advances to step S21.

Step S16: If YES in step S15 (the start request data is received), processing of the module that is being executed is stopped.

20 Steps S17 and S18: It is determined whether the start request data received in step S15 represents purchase request processing (step S17). If YES in step S17, purchase request processing is executed (step S18). At this time, transition to approval request processing (05) is possible.

25 Steps S19 and S20: If NO in step S17, it is determined whether the start request data received in step S15

represents acceptance result display processing (step S19).  
If YES in step S19, acceptance result display processing  
is executed (step S20).

Step S21: It is detected whether data representing  
5 the end of use of this system is received from the login  
client 1 via the W/S 3. If NO in step S21 (the data is not  
received), the flow returns to step S15.

Step S43: If YES in step S21 (the data representing  
the end of use is received), processing of the module that  
10 is being executed is stopped.

Step S31: When it is determined in step S13 that the  
login user is an approver, approval processing (07) is  
performed.

Step S32: It is detected whether start request data  
15 for another module different from the module that is being  
currently executed is received from the login client 1  
through the W/S 3. If NO (the data is not received), the  
flow advances to step S42.

Step S33: If YES in step S32 (the start request data  
20 is received), processing of the module that is being  
executed is stopped.

Steps S34 and S35: It is determined whether the start  
request data received in step S32 represents request state  
display processing (02) (step S34). If YES in step S34,  
25 request state display processing (02) is executed (step  
S35). At this time, transition to correction input

processing (04) is possible.

Steps S36 and S37: If NO in step S34, it is determined whether the start request data received in step S32 represents purchase request processing (03) (step S36).

- 5 If YES in step S36, purchase request processing (03) is executed (step S37). At this time, transition to approval request processing (05) is possible.

- Steps S38 and S39: If NO in step S36, it is determined whether the start request data received in step S32  
10 represents acceptance result display processing (06) (step S38). If YES in step S38, acceptance result display processing (06) is executed (step S39).

- Steps S40 and S41: If NO in step S38, it is determined whether the start request data received in step S32  
15 represents temporary worker management processing (08) (step S40). If YES in step S40, temporary worker management processing (08) is executed (step S41). On the other hand, if NO in step S40, the flow returns to step S32.

- Step S42: It is detected whether data representing  
20 the end of use of this system is received from the login client 1 via the W/S 3. If NO in step S42 (the data is not received), the flow returns to step S32. If YES in step S42 (the data representing the end of use is received), the flow advances to step S43.

- 25 (2) Window Display Processing Common to Modules

Fig. 33 is a flow chart showing window display

processing common to the modules executed by the A/S of the purchase request system according to the embodiment of the present invention. This processing is performed to display a window corresponding to the input operation by the user on the display 22 of the client 1 which is logging in the A/S 2. This processing is started by the CPU of the A/S 2 when the function to be used by the user of the client 1 is changed by a predetermined operation in a window (to be described later).

10           Step S101: Data of each item necessary in the top window (i.e., top window corresponding to the function designated by a predetermined operation) to be displayed on the client 1 is read out from the D/B 5.

              In step S102: The display window data of the top window to be displayed and the data read out from the D/B 5 in step S101 are transmitted to the login client 1 via the W/S 3. Upon receiving the display window data and the like via the communication interface 27, the CPU 21 of the client 1 interprets the received display window data by the browser function which is currently being executed and displays the top window on the display 22 in accordance with the interpretation.

              Step S103: It is detected whether data representing the end of use of this system is received. If YES in step S103 (the data is received), processing is stopped.

              Step S104: If NO in step S103 (the data is not



received), it is determined whether data representing that  
a software button (to be referred to as a button  
hereinafter) (including an icon) is depressed (clicked) on  
the window currently displayed on the client 1 is received  
5 through the W/S 3. If NO in step S104 (the data is not  
received), the flow returns to step S103.

Step S105: If YES in step S103 (the data is received),  
it is determined whether the button is a button for  
selecting another function different from the function that  
10 can be used by the user on the currently displayed window.  
If YES in step S105 (another function button is clicked),  
the flow returns to step S101. If NO in step S105 (another  
function button is not clicked), the flow advances to step  
S107.

15 Step S106: If NO in step S103 (the data is not  
received), data received via the W/S 3 in accordance with  
the input operation by the user on the window which is  
currently being displayed on the client 1 is written  
(including update) in the D/B 5 and/or new data is read out  
20 from the D/B 5.

Step S107: The data read out in step S106 and display  
window data representing a window for displaying the data  
are transmitted to the login client 1 via the W/S 3, as needed,  
and the flow returns to step S103. Upon receiving the  
25 display window data and the like, as in step S102, the CPU  
21 of the client 1 displays a window belonging to the

currently displayed top window or a new window on part of the currently displayed window.

### (3) Description of Function of Each Window

The detailed functions of the modules constructing the system shown in Figs. 3 to 5 will be described below with reference to main windows (Figs. 9 to 29) which can be displayed on the display 22 of the client 1.

#### <Login (01) Module>

Fig. 9 is a view showing a login window in the purchase request system according to the embodiment of the present invention.

A login window 01-01-00 shown in Fig. 9 can be opened from a predetermined HP displayed on the client 1 by the above-described procedure (although details will be described later, the login window can be opened even by using the mailer function to be described later with reference to Figs. 7 and 8).

In this login window, the user inputs predetermined data in the columns of personal name (user ID) and password. When the "login" button is clicked, the input data are transmitted to the A/S 2. The A/S 2 determines whether the user himself/herself logs in and whether the user is a requester or approver, on the basis of the user ID and password input as described above. In accordance with the determination result, the A/S 2 determines a top window which can transit to another window. When the "reset"

button is clicked, input to the columns of personal name and password can be reset (the "reset" buttons in other windows have the same function as described above, and a detailed description thereof will be omitted). When "end" button is clicked, data representing the end of use of this system is transmitted to the A/S 2 (the "end" buttons in other windows have the same function as described above, and a detailed description thereof will be omitted). When the "user information register/change" button is clicked, the window shown in Fig. 10 is displayed.

Fig. 10 is a view showing the user information registration/change window in the purchase request system according to the embodiment of the present invention.

In a user information registration/change window 01-02-01 (when the user is a requester) shown in Fig. 10, a change in password, e-mail address, and extension number in the business office are input. The e-mail address is input to realize approval request notification from the requester to the approver (Fig. 7) and approval result notification from the approver to the requester (Fig. 8) (both will be described later). The user who has completely input these items in this window clicks the "register/update" button (the "register/update" buttons in other windows have the same function as described above, and a detailed description thereof will be omitted). The input data are transmitted to the A/S 2. When "return"

button is clicked, a window as an upper layer of the currently displayed window is displayed (the "return " buttons in other windows have the same function as described above, and a detailed description thereof will be omitted).

- 5 In this case, the login window 01-01-00 in Fig. 9 is displayed again.

The dialogue box on the lower side of the broken line in the window shown in Fig. 10 is displayed to set a target approval section only when the login user is an approver.

- 10 In this case, the window number is 01-02-02. In this dialogue box, the login user as an approver can change (add or delete) by himself/herself the sections (groups of requesters) in his/her charge in approving purchase requests. More specifically, to add a target section, the
- 15 approver inputs the code of the section to the column of post code and clicks the "register" button. To delete a target section, he/she selects the section to be deleted from the list of current target sections and clicks the "delete" button. With this function, an approver can
- 20 temporarily approve purchase requests from a section not in his/her charge by proxy for the original approver of the section due to some reason, so a more practical system can be realized.

- <Request State Display Processing Module (02) and
- 25 Correction Input Processing Module (04)>

Fig. 11 is a view showing a request state display

window in the purchase request system according to the embodiment of the present invention. This window is displayed first after login is complete when the user is a requester. Fig. 12 is a view showing the dialogue box  
5 for designating search conditions and display form in the request state display window.

In a request state display window 02-01-01, the list of article purchase request statuses is displayed in accordance with conditions designated in the dialogue box  
10 for designating the search conditions and display form shown in Fig. 12. The displayed data are data read out from the D/B 5.

Buttons at the upper portion of the request state display window 02-01-01 shown in Fig. 11 will be described.

15 On the "n articles selected" button, the number (number of types) of articles purchase-requested by the purchase request function realized by the purchase request processing module (03) (to be described later) is displayed. When this button is clicked, a requested article selection  
20 list window 03-03-00 shown in Fig. 17 is displayed to set the purchase quantity of the n articles. The "n articles selected" button may have a shape of, e.g., a shopping basket as shown in Fig. 13, on which the number of purchase-requested articles is displayed.

25 When the "purchase request" button is clicked, a catalog search window 03-01-00 shown in Fig. 14, which is

realized by the purchase request processing module (03),  
is displayed.

When the "acceptance result" button is clicked, an  
acceptance result list window 06-01-00 shown in Fig. 23,  
5 which is realized by the acceptance result display  
processing (06), is displayed.

When the "?" button at the upper portion of the request  
state display window 02-01-01 is clicked, to display text  
data for explaining the function, which is stored in the  
10 D/B 5 in advance, a program for transmitting the data to  
the client 1 is executed by the A/S 2 (the "?" buttons in  
other windows have the same function as described above,  
and a detailed description thereof will be omitted).

The plurality of buttons in the upper region of the  
15 above-described window or another window to be described  
below are actually displayed with any one of the buttons  
kept clicked in accordance with the displayed window. For  
the illustrative convenience, the button kept clicked in  
this region is indicated by a bold frame for discrimination  
20 from unclicked buttons.

In the dialogue box for designating search conditions  
and display form shown in Fig. 12, search conditions and  
display form can be designated.

As the search conditions to be designated, input of  
25 the section code of the request source or expense payer,  
the personal name code of the requester or approver, the

article request number, and the state of an article to be searched for (withdrawal, rejection, registration, and the like) can be designated.

As the display form, the number of data to be displayed in one page can be designated in the column of list display count. In addition, a status window (request state display window 02-01-01 shown in Fig. 11) for mainly displaying the current status information of the individual articles or an expense window (window 02-01-02 which is not shown) for mainly displaying the expense information of individual articles can be selected.

After the search conditions and display form are designated, the "search" button is clicked. With this operation, a request state display window according to the designated conditions is displayed on the display 22 of the client 1.

In the list of purchase request statuses of the request state display window 02-01-01, the selection button, message, state (status), request number, requester name, article name, request quantity, estimated amount, desired due date of delivery, due date of order, date of registration, date of request, date of approval, date of reception, date of order, date of delivery, date of acceptance, order quantity, delivery quantity, acceptance quantity, date of completion of order, delay answer (text), and approver name can be displayed. This will be described

below in more detail.

Selection button: This button is clicked to select an article with a certain request number.

Message: ● is displayed in this column when a message  
5 for the requester or approver is present.

State (status): As the current state of an article with a certain request number, the A/S 2 selects one of "registered", "wait for approval", "approved", "rejected", and "withdrawn" (details will be described later) in  
10 accordance with operation in the window displayed by purchase request processing (03), approval request processing (05), and approval processing (07) (to be described later).

Request number: The reference number of an article  
15 in this purchase request system. The reference number is issued by the A/S 2.

Requester name: The name of a requester who has requested to purchase an article with a certain request number. The name is selected from the personnel data 7 by  
20 the A/S 2 in accordance with the user ID.

Article name: The name of a purchase-requested article. The article name is selected from the D/B 5 by the A/S 2.

Request quantity: The quantity of a  
25 purchase-requested article. This data is input by the requester.



Estimated amount: The estimated price (or actual sales price) of a purchase-requested article. The amount is selected from the D/B 5 by the A/S 2.

Desired due date of delivery: The date of delivery  
5 desired by the requester of a purchase-requested article. This data is input by the requester.

Due date of order: The actually expected due date set in actual order by the procurement department.

Date of registration: The date when the requester  
10 generates a purchase request and registers the data on the A/S 2 side for the first time.

Date of request: The date when approval of a purchase-requested and registered article is requested. This date is registered by the A/S 2 in accordance with an  
15 operation in the window displayed by approval request processing (05) (to be described later).

Date of approval: The date when an approval-requested article is approved by an approver. This date is registered by the A/S 2 in accordance with the operation of the approver  
20 in the window displayed by approval processing (07) (to be described later):

Date of reception: The date when a purchase-approved article is received by the procurement department. This date is reflected from the D/B 6 of the article ordering  
25 system to the D/B 5.

Date of order: The date when the procurement

department has actually ordered an article for which reception is completed. This date is reflected from the D/B 6 of the article ordering system to the D/B 5.

5      Date of delivery: The date when an article with a certain request number is delivered. This date is reflected from the D/B 6 of the article ordering system to the D/B 5.

10      Date of acceptance: The date when a delivered article is accepted. This date is reflected from the D/B 6 of the article ordering system to the D/B 5.

Order quantity: The quantity of articles actually ordered by the procurement department. This quantity is reflected from the D/B 6 of the article ordering system to the D/B 5.

15      Delivery quantity: The delivery quantity of articles ordered by the procurement department. This quantity is reflected from the D/B 6 of the article ordering system to the D/B 5.

20      Acceptance quantity: The acceptance quantity of articles delivered. This quantity is reflected from the D/B 6 of the article ordering system to the D/B 5.

25      Date of completion of order: The date when the order by the procurement department is completed. This date is reflected from the D/B 6 of the article ordering system to the D/B 5.

Delay answer (text): A comment associated with delay

of the due date of delivery by the procurement department.  
This comment is input by a person in charge in the  
procurement department.

Approver name: The name of an approver who has  
5 approved purchase of an article with a certain request  
number. The name is registered by the A/S 2 in accordance  
with an operation by the approver in the window displayed  
by approval processing (07) (to be described later).

The statuses displayed in the column of state  
10 (status) will be described.

"Registered": This status is set on the D/B 5 by the  
A/S 2 in the purchase request function realized by the  
purchase request processing module (03) (to be described  
later) when the requester inputs a predetermined item about  
15 a purchase-requested article and then performs a  
registration operation.

"Wait for approval": This status is set on the D/B  
5 by the A/S 2 in the approval request function realized  
by the approval request processing module (05) (to be  
20 described later) when an approval request for purchase is  
issued, and no determination is made yet by the approver.

"Approved": This status is set on the D/B 5 by the  
A/S 2 in the approval processing function realized by the  
approval processing module (07) (to be described later)  
25 when the approver approves purchase of an article in the  
"wait for approval" state. The state of the approved

article cannot be changed anymore.

"Rejected": This status is set on the D/B 5 by the A/S 2 in the approval processing function realized by the approval processing module (07) (to be described later) 5 when the approver does not approve purchase of an article in the "wait for approval" state and rejects it.

"Withdrawn": This status is set on the D/B 5 by the A/S 2 when the requester withdraws the request in the request state display window 02-01-01 shown in Fig. 11 10 before the approver determines approval or rejection of purchase of an article in the "wait for approval" state.

The functions of buttons in the middle of the request state display window 02-01-01 shown in Fig. 11 will be described.

15 When the "re-load" button is clicked, the request state list is re-displayed on the basis of the current data in the D/B 5 on the basis of designation of current search conditions and display form.

After one or a plurality of articles are selected by 20 clicking the column of selection (the same procedure as described above is used to select articles from another lists displayed on windows, and a detailed description thereof will be omitted), the "requester change" button is clicked. With this operation a requester change window 25 02-04-00 (not shown) in which the requester can be changed is displayed.

When one or a plurality of articles are selected, and then, the "approval request" button is clicked, an approval request window 05-01-00 (05-02-00) for the selected articles is displayed.

5           When one or a plurality of articles are selected, and the "correct" button is clicked, the input matters can be changed in windows 04-01-00, 04-02-00, and 04-03-00 (none are shown) displayed by the function of the correction input processing module (04). The correction input function  
10 realized by the correction input processing module (04) can transit to the approval request function realized by the approval request processing module (05).

When one or a plurality of articles are selected, and the "withdraw" button is clicked, a withdrawal confirmation  
15 window 02-03-02 (not shown) is displayed. The requester can withdraw an article in the "wait for approval" state by inputting a predetermined operation in the displayed window.

When one or a plurality of articles are selected, and  
20 the "delete" button is clicked,, a deletion confirmation window 02-03-01 (not shown) is displayed. When a predetermined operation is input in the displayed window, an article currently in the "withdrawn" or "registered" state can be deleted.

25           When the ▲ or ▼ mark is clicked in the purchase request status list, the display order of the list can be

rearranged in the ascending or descending order by a general method.

The request state display module (02) can display a details confirmation window 02-02-00 (not shown). In this  
5 window, detail information of a selected article can be confirmed.

<Purchase Request Processing Module (03) and Approval Request Processing Module (05)>

Fig. 14 is a view showing the catalog search window  
10 of the purchase request processing function of the purchase request system according to the embodiment of the present invention.

In a catalog search window 03-01-00, the requester selects an article for which purchase is to be requested  
15 from catalog data stored in the D/B 5 in advance. In the catalog data, data such as the article name, type, maker, estimated amount (estimated purchase amount), and normal due date of delivery are registered and managed in units of articles by, e.g., the person in charge in the  
20 procurement department.

An article can be selected by keyword search or genre search.

In keyword search, a keyword or a chemical substance registration number is input, and the number of search  
25 results to be displayed in one page is set in the display count input column. When the "search" button is clicked,

a catalog list window 03-02-00 according to the designated conditions is displayed on the display 22 of the client 1.

Fig. 15 is a view showing the catalog list window of the purchase request processing function of the purchase request system according to the embodiment of the present invention.

In the catalog list window 03-02-00 shown in Fig. 15, the data of articles selected from the catalog data in the D/B 5 on the basis of the designated search conditions are displayed in a number corresponding to the display count designated in the catalog search window 03-01-00. When an article name is clicked, an article description window 03-04-02 (not shown) in which the description of the article is made is displayed.

The catalog list window 03-02-00 has the "many-item request" button and "one-item request" button.

More specifically, after one or more desired articles are clicked in the selection column of the catalog list window 03-02-00, the "many-item request" button is clicked. With this operation, the number of types clicked is added to the " n articles selected". When the user clicks the "n articles selected" button, a requested article selection list window 03-03-00 shown in Fig. 17 is displayed.

When only one desired article is clicked in the selection column of the catalog list window 03-02-00, and then, the "one-item request" button is clicked, a detail

information input window 03-06-00 for a one-item request shown in Fig. 20 is displayed.

The windows to be opened will be described later in detail. In "many-item request", a plurality of types of articles desired are selected from the plurality of  
5 articles displayed in the catalog list window 03-02-00, and approval requests for purchase of the selected plurality of articles are issued. In "one-item request", only one desired article is selected from the plurality of articles  
10 displayed in the catalog list window 03-02-00, and an approval request for purchase of the selected article is issued.

In genre search, from a pull-down menu displayed by clicking the "open" button (Fig. 14), item groups to which  
15 the desired article belongs are selected one by one in the order of genre 1 → genre 2 → genre 3. When the "list display" button is clicked, a list of articles (catalog list window 03-02-00) corresponding to the item group selected in the genre is displayed.

20 When the "repeat" button (Fig. 14) is clicked, of articles which belong to the item group selected in genre 1 and are accepted by the previous month, articles for which purchase requests are issued by "individual request" are displayed as a list in a repeat search window 03-08-00 (not  
25 shown). This window can conveniently transit to an individual input window 03-07-00 shown in Fig. 16 when the



desired article is not present in the displayed list.

The "individual request" button (Fig. 14) is used when the desired article cannot be found from the catalog data in the D/B 5 by the above-described keyword search, genre search, and "repeat" function. When this button is clicked, the individual input window 03-07-00 shown in Fig. 16 is displayed.

Fig. 16 is a view showing the individual input window of the purchase request processing function of the purchase request system according to the embodiment of the present invention. When purchase of an article unregistered on the catalog data in the D/B 5 is to be requested, detail information of the desired article can be input.

In the individual input window 03-07-00 shown in Fig. 16, necessary matters are input to the columns of the window. When a plurality of requesters are requesting purchase of an article unregistered in the catalog data, input data about the same article are transmitted from the plurality of requesters to the A/S 2. The person in charge in the procurement department can easily recognize the necessity of the article on the basis of the number of input data about the same article. For this reason, the scale of buy in a mass (lot) for the next delivery and the unit price (expected unit price) for the buy in a mass can be accurately predicted.

When the necessary matters are completely input in

the individual input window, and the "next" button is clicked, an article information (detail input) window 03-06-00 shown in Fig. 20 is displayed. When the "select" button is clicked, the request is added as one of the plurality of requests, so the value n on the "n articles selected " button is incremented by one. When the "n articles selected" button is clicked, the requested article selection list window 03-03-00 shown in Fig. 17 is displayed to set the purchase quantity of the n articles, as described above.

Fig. 17 is a view showing the requested article selection list window of the purchase request processing function of the purchase request system according to the embodiment of the present invention.

The requested article selection list window 03-03-00 shown in Fig. 17 shows a case wherein three articles are selected in the catalog list window 03-02-00. The purchase quantity of each of the selected articles can be input to the column of requested quantity.

The requested article selection list window 03-03-00 has the "many-item details input" button and "one-item details input" button.

More specifically, when two or more desired articles are clicked in the column of selection of the requested article selection list window 03-03-00, and the "many-item details input" button is clicked, a detail information

input window 03-05-00 for a many-item request shown in Fig. 18 is displayed.

When only one desired article is clicked in the column of selection of the requested article selection list window 03-03-00, and the "one-item details input" button is clicked, a detail information input window 03-06-00 for a one-item request shown in Fig. 20 is displayed.

Fig. 18 is a view showing the detail information input window for a many-item request of the purchase request processing function of the purchase request system according to the embodiment of the present invention.

In the detail information input window 03-05-00 shown in Fig. 18, pieces of information including the expense payer, section code, accounts (account title), expense, facility budget code, desired due date of delivery, and delivery business office are input in association with purchase of the plurality of articles selected in the requested article selection list window 03-03-00.

When the "account list" button is clicked, combinations of selectable account titles and expenses are displayed as a list.

In this embodiment, in inputting these items in this window (including the detail information input window 03-06-00 shown in Fig. 20), the cross-check function described above with reference to Fig. 30 is executed by the CPU 21 of the client 1 to check the suitability of the

format of input data to a predetermined item.

Fig. 21 is a view showing conditions of cross-check executed by the client in inputting data to the detail information input window in the purchase request system according to the embodiment of the present invention.

In the list of cross-check conditions shown in Fig. 21, conditions of an input format (e.g., the character string and/or numerical string to be used) to be satisfied by input data of a predetermined item such as the expense or facility budget code are determined on the basis of data input to the column of account (account title) of the detail information input window 03-05-00 as a key. The data of cross-check conditions are stored in the D/B 5 in advance. These data are stored in the RAM 25 of the client 1 when the display window data of an HP or the like is received in step S1 of Fig. 30.

When input to the plurality of items of the detail information input window 03-05-00 is ended, and the requester clicks the "register" button, the data input at this time point is transmitted to the A/S 2.

Upon receiving the data of detail information, the A/S 2 compares the data of date input to the column of desired due date of delivery of the detail information input window with the calendar data for the company (business office), which is registered in the D/B 5 in advance, thereby determining whether the desired due date of delivery is the

date of a holiday in the calendar data.

If it is determined that the desired due date of delivery is not the date of a holiday in the calendar data, the A/S 2 writes the data of detail information in the D/B

5 5.

If the desired due date of delivery is the date of a holiday in the calendar data, the A/S 2 transmits predetermined display window data to the client 1 that has transmitted the data of detail information to display an

10 error window 03-11-01 shown in Fig. 22.

Fig. 22 is a view showing the error window displayed when the desired due date of delivery input in the detail information input window has an error in the purchase request system according to the embodiment of the present

15 invention.

In the error window 03-11-01 shown in Fig. 22, a predetermined error message representing that the desired due date of delivery input by the requester in the detail information input window 03-05-00 is the date of a holiday

20 in the calendar is displayed. In addition, the "OK" button and "ignore" button are displayed.

When the "OK" button is clicked, the detail information input window 03-05-00 is displayed again to newly set the desired due date of delivery. When the

25 "ignore" button is clicked, predetermined data representing that the requester desires delivery of the

article at the desired due date of delivery, though he/she agrees that the desired due date of delivery currently set is the date of a holiday, is transmitted to the A/S 2. Upon receiving the predetermined data, the A/S 2 writes the data  
5 of detail information in the D/B 5.

When the "approval request" button is clicked in association with the article whose detail information is written in the D/B 5 (i.e., the article registered in the detail information input window 03-05-00), an approval  
10 request window 05-01-00 for a many-item request shown in Fig. 19, which can be displayed by the approval request processing module (05), is displayed.

The function of confirming the desired due date of delivery is also executed for the detail information input  
15 window 03-06-00 for a one-item request.

Fig. 19 is a view showing a state wherein the approval request window for a many-item request is displayed together with the detail information input window by the approval request processing function of the purchase  
20 request system according to the embodiment of the present invention.

In the approval request window 05-01-00 for a many-item request shown in Fig. 19, approvers in charge for the section to which the requester who is requesting  
25 approval belongs are displayed by a pull-down menu (when proxy approvers are set in the login window 01-02-02, the

proxy approvers are displayed). The requester selects one of the approvers from the menu and clicks the "OK" button. With this operation, the purchase request operation and approval request operation for a plurality of articles by the requester are ended. At this time point, mail (Fig. 7) for notifying the approver of the approval request is transmitted to the approver selected in the menu by the mailer function of the M/S 4.

Fig. 20 is a view showing a state wherein the approval request window for a one-item request is displayed together with the detail information input window by the approval request processing function of the purchase request system according to the embodiment of the present invention.

Referring to Fig. 20, the detail information input window 03-06-00 for a one-item request and the approval request window 05-02-00 for a one-item request are displayed together. Catalog data of an article selected in the requested article selection list window 03-03-00 is displayed as "article information" at the left portion of the detail information input window. As in the approval request window 05-01-00 shown in Fig. 19, the requester requests the approver for approval in the approval request window 05-02-00. For a one-item request as well, mail for notifying the approver of the approval request is transmitted to the approver selected in the menu at this time point.

<Acceptance Result Display Processing Module (06)>

Fig. 23 is a view showing the acceptance result list window displayed by the acceptance result display function in the purchase request system according to the embodiment  
5 of the present invention.

In an acceptance result list window 06-01-00 shown in Fig. 23, an operation method designation dialogue box is displayed, like the dialogue box for designating search conditions and display form in the request state display  
10 window 02-01-01 shown in Fig. 12. When predetermined items are input to this designation dialogue box, and the "search" button is clicked, accepted articles read out from the D/B 5 are displayed as a list.

The functions that can be executed by the user of the client 1 as the requester from the display 22 have been  
15 described above.

Next, various functions that can be executed by the user of the client 1 as an approver will be described. The approver can use the above-described functions as a  
20 requester and also use the approval processing function realized by the approval processing module (07), which can be executed by only the approver, and the temporary worker management function realized by the temporary worker management module (08). In the following description, a  
25 detailed description of functions that can be used by the approver as a requester will be omitted, and the approval



processing function (07) and temporary worker management function (08) will be described.

In accessing the purchase request system, the approver can log in to the system from the above-described predetermined HP. When approval request mail is received, the approver can also access the system from a mailer window shown in Fig. 7. The procedure of access will be described.

Fig. 7 is a view showing a mailer window displayed when approval request mail is sent to the approver by the mailer function of the purchase request system according to the embodiment of the present invention.

Approval request mail from the requester is transmitted by the M/S 4 to the approver designated by the requester, and a window 31 shown in Fig. 7 is displayed on the client 1 of the approver. When the approver clicks an approval request number column 32, the mail addresses of the requester and approver, a comment representing that an approval request is received, and the URL of the purchase request system are displayed at the lower portion of the window 31. When the approver clicks the URL portion of a display area 33, the above-described login window 01-01-00 shown in Fig. 9 is displayed. The approver can log in to the purchase request system from this window.

The reason why the system is set such that the login window can be opened from the mailer window is as follows. The login window has a relatively small number of displayed

items and a large blank portion. When the system manager describes information items using the blank portion, the approver can easily recognize the message of the information items on the layout.

5           However, the window to be opened is not limited to this. For example, when priority is given to the convenience for the approver, the mail address of the approver, which is set as the destination of the mail, is acquired from the M/S 4 to the A/S 2. The user ID of the  
10   approver is read out from the D/B 5 to the A/S 2 on the basis of the mail address. Processing from login to opening of an approval request list window 07-01-00 can be automatically performed by the A/S 2 using the readout user ID. In this case, since the approver need not perform the  
15   login operation by himself/herself, the convenience for the approver can be improved.

<Approval Processing Module (07)>

When login of the approver from the login window 01-01-00 is ended, the approval request list window  
20   07-01-00 shown in Fig. 24 is displayed on the display 22 of the client 1 of the approver by the function of the approval processing module (07), as described above with reference to Figs. 31 and 32.

Fig. 24 is a view showing the approval request list  
25   window displayed by the approval processing function in the purchase request system according to the embodiment of the

present invention.

Not only buttons representing functions that can be used by a requester but also the "approval processing" button and "temporary worker management" button are  
5 provided at the upper portion of the approval request list window 07-01-00 shown in Fig. 24.

In the approval request list window, various data of an article for which approval request mail is received are displayed as a list, as shown in Fig. 24. Even when one  
10 approval request number is clicked in the window 31 shown in Fig. 7, all articles read out from the D/B 5 by the A/S 2 on the basis of the user ID of the approver are displayed as a list on the approval request window.

When a request number in the list displayed in the  
15 window is clicked, a details confirmation window (not shown) in which detail information of the article with the request number is displayed. The window has the "approval select" button and "rejection select" button. The functions of these buttons will be described below.

20 Fig. 25 is a view showing the approval processing window of the approval processing function in the purchase request system according to the embodiment of the present invention.

A approval processing window 07-02-01 shown in  
25 Fig. 25 is displayed at the lower portion of the approval request list window or as another window when one or more

articles are selected in the approval request list window 07-01-00, and the "approval select" button is clicked. When an amount more than ¥200,000 is set for an article to be approved, a predetermined message representing this amount is displayed, as shown in Fig. 25. This aims at calling the approver's attention to confirm whether the purchase quantity of the article has no input error. When the "OK" button is clicked in this approval processing window 07-02-01, purchase of the article displayed in this window is approved. Predetermined data representing approval is transmitted to the A/S 2, and the status of the article in the D/B 5 is updated from "wait for approval" to "approved".

When the status of the article in the D/B 5 is updated to "approved", the column of the approved article is deleted from the displayed items of the list of the approval request list window 07-01-00 (In the display example in Fig. 24, one article is displayed as an approval-requested article. In this case, only predetermined items of the list are displayed by "approving" the article).

Fig. 26 is a view showing the rejection processing window of the approval processing function in the purchase request system according to the embodiment of the present invention.

A rejection processing window 07-02-02 shown in Fig. 26 is displayed at the lower portion of the approval

request list window or as another window when one or more articles are selected in the approval request list window 07-01-00, and the "rejection select" button is clicked. When the "OK" button is clicked in this rejection processing window 07-02-02, purchase of the article displayed in this window is rejected. Predetermined data representing rejection is transmitted to the A/S 2, and the status of the article in the D/B 5 is updated from "wait for approval" to "rejected".

10        When the approver performs the approval or rejection operation as described above, data in the D/B 5 is updated. In addition, mail for notifying the requester that the purchase of the approval-requested article is approved or rejected is transmitted to the requester by the automatic mail function of the M/S 4.

15        Fig. 8 is a view showing a mailer window displayed when mail replying to the approval request is sent to the requester by the mailer function of the purchase request system according to the embodiment of the present invention.

20        Mail from the approver is automatically transmitted by the M/S 4 to the mail address which is registered in advance by the requester of the article for which approval or rejection is determined. Thereby, a window 31 shown in Fig. 8 is displayed on the client 1 of the requester. When the requester clicks an approval request number column 34,

the mail addresses of the requester and approver, a comment representing that the reply to the approval request is received, and the URL of the purchase request system are displayed at the lower portion of the window 31. When the requester clicks the URL portion of a display area 35, the above-described login window 01-01-00 shown in Fig. 9 is displayed. The requester can log in to the purchase request system from this window and confirm the latest state of the requested article in the request state display window 02-01-01.

In this case as well, as in the mail window shown in Fig. 7, when the mail address of the requester, which is set as the destination of the mail, is acquired from the M/S 4 to the A/S 2. The user ID of the requester is read out from the D/B 5 to the A/S 2 by looking up the D/B 5 on the basis of the mail address. When processing from login to opening of the request state display window 02-01-01 is automatically performed by the A/S 2 using the readout user ID, the requester need not perform the login operation by himself/herself, the convenience for the requester can be improved.

<Temporary Worker Management Processing Module (08)>

When the "temporary worker management" button is clicked by the approver, a temporary worker list window 08-01-00 shown in Fig. 27 is displayed by the function of the temporary worker management processing module (08).

Fig. 27 is a view showing the temporary worker list window of the temporary worker management function in the purchase request system according to the embodiment of the present invention.

5           In the temporary worker list window 08-01-00 shown in Fig. 27, a temporary worker (the user of the client 1 who is not registered in the personnel data 7) can be registered, corrected, or deleted as a requester of this system. At this time, on the basis of the user ID (employee  
10       code) of the login user as an approver, data of temporary workers registered by the section code of the section managed by the user are read out from the D/B 5, and the temporary workers are displayed on the client 1 of the approver as a list in the window.

15           To register a temporary worker, the "register" button of the temporary worker list window 08-01-00 is clicked. A temporary worker registration window 08-02-01 shown in Fig. 28 is displayed at the lower portion of the temporary worker list window or as another window.

20           Fig. 28 is a view showing the temporary worker registration window of the temporary worker management function in the purchase request system according to the embodiment of the present invention.

          In the temporary worker registration window 08-02-01  
25       shown in Fig. 28, predetermined items such as the name, date of birth, staffing agency, and business office of a

temporary worker to be registered are input, and then, the "OK" button is clicked. The input data are transmitted to the A/S 2 and written in the D/B 5.

To delete a temporary worker, the target temporary worker is selected from the list in the temporary worker list window 08-01-00, and the "delete" button is clicked. With this operation, a temporary worker deletion window 08-02-03 shown in Fig. 29 is displayed at the lower portion of the temporary worker list window or as another window.

Fig. 29 is a view showing the temporary worker deletion window of the temporary worker management function in the purchase request system according to the embodiment of the present invention.

In the temporary worker deletion window 08-02-03 shown in Fig. 29, the registered information of the selected temporary worker is displayed. When the "OK" button in this window is clicked, predetermined data representing deletion is transmitted to the A/S 2. The registered data of the temporary worker is deleted from the D/B 5.

To correct the registered data of a temporary worker, the "correct" button is clicked in accordance with the same procedure as that for deletion. A temporary worker correction window 08-02-02 (not shown) substantially the same as for deletion in Fig. 29 is displayed. Data is corrected in this window, and the "OK" button is clicked.



According to the temporary worker management function realized by the above-described temporary worker management processing module (08), temporary workers which are not registered in the personnel data 7 can be  
5 appropriately managed.

[Other Embodiments]

The object of the present invention can be achieved even by supplying a storage medium storing software program codes for realizing the function of the above-described  
10 embodiment to a client and server, and causing the computer (or a CPU or an MPU) of the client or server to read out and execute the program codes stored in the storage medium.

In this case, the program codes read out from the storage medium realize the function of the above-described  
15 embodiment by themselves, and the storage medium storing the program codes constitutes the present invention.

As a storage medium for supplying the program codes, a floppy disk, a hard disk, an optical disk, a magnetooptical disk, a CD-ROM, a CD-R, a magnetic tape, a nonvolatile memory  
20 card, a ROM, or the like can be used.

The function of the above-described embodiment is realized not only when the readout program codes are executed by the computer but also when the OS (Operating System) running on the computer performs part or all of actual  
25 processing on the basis of the instructions of the program codes.

The function of the above-described embodiment is also realized when the program codes read out from the storage medium are written in the memory of a function expansion board inserted into the computer or a function expansion unit  
5 connected to the computer, and the CPU of the function expansion board or function expansion unit performs part or all of actual processing on the basis of the instructions of the program codes.

As has been described above, according to the above  
10 embodiment, the conventional business procedures including preparation, issue, and transfer of physical purchase slips are abolished, and the following matters are realized.

According to the client 1 (client 1 used by the user as a requester) as the purchase request apparatus in the  
15 above-described purchase request system, purchase of various articles can be efficiently requested.

According to the client 1 (client 1 used by the user as a requester) as the purchase request apparatus in the above-described purchase request system, purchase requests  
20 of various articles and change in requested contents become flexible.

According to the client 1 (client 1 used by the user as a requester) as the purchase request apparatus in the above-described purchase request system, data associated  
25 with a desired article to be purchase-requested can be accurately input.

According to the above-described purchase request system, various articles can be efficiently purchased using the existing terminal group.

5 According to the above-described purchase request system, various articles can be efficiently purchased. In addition, according to the above-described purchase request system, temporary workers which are not registered in the personnel database can be appropriately managed.

10 According to the client 1 (client 1 used by the user as an approver) as the purchase request approving apparatus in the above-described purchase request system, approval or rejection of a purchase-requested article can be efficiently input.

15 As many apparently widely different embodiments of the present invention can be made without departing from the spirit and scope thereof, it is to be understood that the invention is not limited to the specific embodiments thereof except as defined in the appended claims.